CLAIMS

1. A method for automatically calibrating a multi-projector system with at least two projectors for projecting images onto a projection surface, a digital camera for picking up the projection surface, and a control unit for controlling the projectors and the camera, an auto-calibration being performed according to the following steps:
    - projecting single-strip patterns of intersecting lines parallel in groups onto the projection surface by each of the projectors, the positions of the line intersection points of the single-strip pattern in the image to be projected being known,
    - capturing the projected single-strip patterns by means of the camera,
    - filtering the captured single-strip patterns for compensating for background noise, ambient light and/or optical distortions of the single-strip patterns caused by the camera and for detecting the line intersection points of the captured single-strip patterns,
    - detecting the largest projection surface possible on the basis of the captured single-strip patterns,
    - comparing the positions of the line intersection points within the captured single-strip patterns with the known position of the line intersection points of the single-strip patterns to be projected by the projectors in order to detect correction data for correcting distortions occurring as a consequence of unevennesses of the projection surface,
    - calculating warp fields and image warping corresponding to the correction data.

2. Method for automatically calibrating a multi-projector system according to claim 1, characterized in that for the purpose of increasing the total luminosity of the projection, the projection surfaces produced by the individual projectors overlap as completely as possible, the largest

common projection surface possible being determined within the overlapping area of the projection surface of all the projectors as a rectangular surface in particular.

3. Method for automatically calibrating a multi-projector system according to claim 1, characterized in that the projection surfaces produced by the individual projectors partially overlap, the largest projection surface possible being arranged within the overall area of the individual projection surfaces of all the projectors and comprising them as well as the overlapping area and being determined as a rectangular surface in particular.

4. A system for the automatic calibration of a multi-projector system according to claim 3, characterized in that the luminosity of the projectors is reduced within their overlapping areas and is thus adapted to the luminosity of the projectors within the non-overlapping projection surface areas respectively allocated thereto.